What is claimed is:

1. A method of modeling pressure dynamics of a body's intracranial system comprising the steps of:

dividing the body into a plurality of compartments and a heart pump, each of said plurality of compartments representing a portion of the body, said heart pump interacting with at least one of said plurality of compartments;

deriving a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments; and

solving said plurality of differential flow equations.

2. A method according to claim 1, wherein at least one of said compartments accounts for cerebrovascular autoregulation by the body's sympathetic nervous system.

3. A method according to claim 1, wherein said plurality of compartments include a plurality of vascular compartments.

4. A method according to claim 3, wherein said plurality of vascular compartments include a plurality of intracranial compartments.

5. A method according to claim 4, wherein said plurality of intracranial compartments represent at least one of the intracranial arteries, intracranial capillaries, choroids plexus capillaries, venous sinus jugular veins, and intracranial veins.

6. A method according to claim 3, wherein said plurality of vascular compartments include a plurality of central body compartments.

7. A method according to claim 6, wherein said plurality of central body compartments represent at least one of the central arteries, central capillaries, central veins, and extra-ventricular CSF.

8. A method according to claim 3, wherein said plurality of vascular compartments include a plurality of lower body compartments.

9. A method according to claim 8, wherein said plurality of lower body compartments represent at least one of the lower arteries, lower capillaries, and lower veins.

10. A method according to claim 1, wherein said plurality of compartments include a plurality of non-vascular compartments.

11. A method according to claim 10, wherein said plurality of non-vascular compartments represent at least one of the lower tissue, brain, ventricular CSF, and extra-ventricular CSF.

12. A method according to claim 1, wherein said plurality of compartments includes an atmosphere compartment, said atmosphere compartment being located outside the body.

13. A method according to claim 1, wherein said plurality of compartments include a rest of body compartment.

14. A method according to claim 1, wherein said plurality of differential flow equations simulate the pressure dynamics of the body's intracranial system.

15. A method according to claim 14, wherein said plurality of differential flow equations include a pressure driven flows equation.

16. A method according to claim 14, wherein said plurality of differential flow equations include an equation simulating fluid filtration from capillaries into interstitial space.

17. A method according to claim 14, wherein said plurality of differential flow equations include an equation simulating deformation of the membrane between adjacent compartments.

18. A system for modeling an intracranial system comprising:

a body compartment module adapted to divide the body into a plurality of compartments and a heart pump, each of said plurality of compartments representing a portion of the body;

a flow equation module adapted to derive a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments; and

an equation solver module adapted to solve said plurality of differential flow equations.

19. A system according to claim 18, wherein at least one of said compartments accounts for cerebrovascular autoregulation by the body's sympathetic nervous system.

20. A system according to claim 18, wherein said plurality of compartments include a plurality of vascular compartments.

21. A system according to claim 20, wherein said plurality of vascular compartments include a plurality of intracranial compartments.

22. A system according to claim 21, wherein said plurality of intracranial compartments represent at least one of the intracranial arteries, intracranial capillaries, choroids plexus capillaries, venous sinus jugular veins, and intracranial veins.

23. A system according to claim 20, wherein said plurality of vascular compartments include a plurality of central body compartments.

24. A system according to claim 23, wherein said plurality of central body compartments represent at least one of the central arteries, central capillaries, central veins, and extra-ventricular CSF.

25. A system according to claim 20, wherein said plurality of vascular compartments include a plurality of lower body compartments.

26. A system according to claim 25, wherein said plurality of lower body compartments represent at least one of the lower arteries, lower capillaries, and lower veins.

27. A system according to claim 18, wherein said plurality of compartments include a plurality of non-vascular compartments.

28. A system according to claim 27, wherein said plurality of non-vascular compartments represent at least one of the lower tissue, brain, ventricular CSF, and extra-ventricular CSF.

29. A system according to claim 18, wherein said plurality of compartments includes an atmosphere compartment, said atmosphere compartment being located outside the body.

30. A system according to claim 18, wherein said plurality of compartments include a rest of body compartment.

31. A system according to claim 18, wherein said plurality of differential flow equations include a pressure driven flows equation.

32. A system according to claim 18, wherein said plurality of differential flow equations include an equation simulating fluid filtration from capillaries into interstitial space.

33. A system according to claim 18, wherein said plurality of differential flow equations include an equation simulating deformation of the membrane between adjacent compartments.

34. A method of modeling pressure dynamics of an intracranial system comprising the steps of:

dividing a body into a plurality of compartments and a heart pump, each of said plurality of compartments representing a portion of the body, said heart pump interacting with at least one of said plurality of compartments;

deriving a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments, wherein at

least one of said differential flow equations accounts for cerebrovascular autoregulation by a sympathetic nervous system; and

solving said plurality of differential flow equations.

35. A method of modeling pressure dynamics of an intracranial system comprising the steps of:

dividing a body into a plurality of compartments, each of said plurality of compartments representing a portion of the body;

providing a means for representing a heart pump that interacts with at least one of said plurality of compartments;

deriving a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments, wherein at least one of said differential flow equations includes a means to account for cerebrovascular autoregulation by a sympathetic nervous system; and

solving said plurality of differential flow equations.

36. A method of modeling pressure dynamics of an intracranial system comprising the steps of:

providing a means for dividing a body into a plurality of compartments and a heart pump, each of said plurality of compartments representing a portion of the body, said heart pump interacting with at least one of said plurality of compartments;

providing a means for deriving a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments; and

providing a means for solving said plurality of differential flow equations.

37. A method of modeling pressure dynamics of a body's intracranial system comprising the steps of:

dividing the body into a plurality of compartments and a heart pump, each of said plurality of compartments representing a portion of the body, said heart pump interacting with at least one of said plurality of compartments, wherein a plurality of said plurality of compartments are vascular and a plurality of said plurality of compartments are non-vascular, said vascular compartments including at least one of the intracranial arteries, intracranial capillaries, choroids plexus capillaries, venous sinus jugular veins, intracranial veins, central

arteries, central capillaries, central veins, extra-ventricular CSF, lower arteries, lower capillaries, and lower veins, said non-vascular compartments including at least one of lower tissue, brain, ventricular CSF, and extra-ventricular CSF;

deriving a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments; and

solving said plurality of differential flow equations.

38. A mathematical model for simulating pressure dynamics of an intracranial system, comprising:

a means for dividing the body into a plurality of compartments and a heart pump, each of said plurality of compartments representing a portion of the body;

a means for deriving a plurality of differential flow equations, each of said plurality of differential flow equations corresponding to one of said plurality of compartments; and

a means for solving said plurality of differential flow equations.